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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/656,626

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Steven A. Clark

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26371

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05/05/2004

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EXAMINER

MORILLO, JANEL COMBS

ART UNIT

PAPER NUMBER

1742

DATE MAILED: 05/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 09/656,626	Applicant(s) CLARK ET AL.	
	Examiner Janelle Combs-Morillo	Art Unit 1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 31 October 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 17-20, 22-30, 32-49, 51-59 and 61-79 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 33-39, 46-59 and 61-79 is/are allowed.
- 6) ☒ Claim(s) 17-20, 22-30, 32, 40-45 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All   b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                     | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                            | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>103103</u> | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 17, 18, 20, 25, 30, 32, and 40-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kroger (US 3,791,876).

Kroger teaches an aluminum alloy product (column 1 lines 32-38), as presently claimed in instant claim 17, wherein said product is an Al-Zn alloy (instant claims 21 and 30) “substantially free from porosity” (instant claim 18, see Kroger column 1 lines 67-68) that falls within the compositional limits of AA7075 (instant claim 25). Kroger teaches that said Al-Zn alloy exhibits an elongation of 7% (Table 1).

Kroger does not teach (a) a process of producing said aluminum alloy by centrifugally casting and then hot isostatically processing (instant independent claim 17), (b) said alloy has “sufficient fluidity as a melt for centrifugal casting” (instant claim 20), or (c) “a tensile strength, a yield strength and an elongation meeting ASTM wrought specifications” (instant claim 32).

However, with regard to the process steps (item (a)), it is well settled that a product-by-process claim defines a product, and that when the prior art discloses a product substantially the same as that being claimed, differing only in the manner by which it is made, the burden falls to applicant to show that any process steps associated therewith result in a product materially different from that disclosed in the prior art. See *In re Brown* (173 USPQ 685) and *In re*

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*Fessman* (180 USPQ 524). Applicant has shown that the instant process steps result in a product materially different with respect to the 6000 and 7000 series. However, the unexpected results are not commensurate in scope with the claimed invention (see MPEP 716.02 d). Whether the unexpected results are the result of unexpectedly improved results or a property not taught by the prior art, the “objective evidence of nonobviousness must be commensurate in scope with the claims which the evidence is offered to support.” In other words, the showing of unexpected results must be reviewed to see if the results occur over the entire claimed range. *In re Clemens*, 622 F.2d 1029, 1036, 206 USPQ 289, 296 (CCPA 1980).

Concerning item (b), the examiner asserts that because the prior art teaches substantially the same alloy product as presently claimed, then substantially the same characteristics, such as fluidity, would be expected to be present.

Concerning item (c), the examiner asserts that given the disclosure of Kroger (who teaches a combined casting and forging of aluminum alloys, abstract), it would have been within the level of one of ordinary skill in the art to achieve a TS, YS, and elongation within the ASTM wrought specifications.

Because Kroger teaches an aluminum alloy product substantially the same as the presently claimed product, it is held that Kroger has created a prima facie case of obviousness of the presently claimed invention.

Concerning claims 40-45, Kroger does not mention micropores, microshrinkage defects, or intergranular voids. However, because Kroger teaches said Al-Zn alloy product is “substantially free from porosity” (instant claim 18, see Kroger column 1 lines 67-68), then one of ordinary skill in the art would expect negligible pores, voids, and microshrinkage defects.

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3. Claims 17, 18, 32, and 40-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yaney et al (US 5,520,754).

Yaney et al teaches an aluminum alloy product (column 1 line 6), as presently claimed in instant claim 17, wherein said product is an Al-Li alloy with porosity eliminated by HIPing (instant claim 18, see Yaney column 4 lines 16-17). In Figures 11-12 and column 9 lines 47, Yaney teaches the DC casting of AA8090 (instant claim 26). Yaney teaches that said Al alloy exhibits an elongation up to 8% (Fig. 4c).

Yaney does not teach (a) a process of producing said aluminum alloy by centrifugally casting and then hot isostatically processing (instant independent claim 17), (b) said alloy has "sufficient fluidity as a melt for centrifugal casting" (instant claim 20), or (c) "a tensile strength, a yield strength and an elongation meeting ASTM wrought specifications" (instant claim 32). Concerning item (a), as stated above, it is well settled that a product-by-process claim defines a product, and applicant has not shown that the presently claimed product is materially different from that disclosed in the prior art. Concerning item (b), the examiner asserts that because the prior art teaches substantially the same alloy product as presently claimed, then substantially the same characteristics, such as fluidity, would be expected to be present. Concerning item (c), the examiner asserts that given the disclosure of Yaney (who teaches a combined DC casting and HIPping of aluminum alloys), it would have been within the level of one of ordinary skill in the art to achieve a TS, YS, and elongation within the ASTM wrought specifications.

Because Yaney teaches an aluminum alloy product substantially the same as the presently claimed product, it is held that Yaney has created a prima facie case of obviousness of the presently claimed invention.

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Concerning claims 40-45, Yaney does not mention micropores, microshrinkage defects, or intergranular voids. However, because Yaney teaches the absence of porosity, then one of ordinary skill in the art would expect negligible pores, voids, and microshrinkage defects.

4. Claims 17-20, 23, 24, 26-28, 32, and 40-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhou et al (US 6,120,625).

Zhou et al teaches an aluminum alloy product (column 4 line 8), as presently claimed in instant claim 17, wherein said product is preferably AA6061 (instant claims 21, 23, 24, 27, and 28) with porosity eliminated by sintering (column 3 lines 12-13, column 6 line 23). Zhou teaches that said Al alloy exhibits an elongation up to 8% (Fig. 4c). Zhou teaches spheroidal particles that have an average grain size of 30-150  $\mu\text{m}$ , which overlaps the presently claimed grain size in instant claim 19.

Zhou does not teach (a) a process of producing said aluminum alloy by centrifugally casting and then hot isostatically processing (instant independent claim 17), (b) said alloy has "sufficient fluidity as a melt for centrifugal casting" (instant claim 20), or (c) "a tensile strength, a yield strength and an elongation meeting ASTM wrought specifications" (instant claim 32). Concerning item (a), as stated above, it is well settled that a product-by-process claim defines a product, and applicant has not shown that the presently claimed product is materially different from that disclosed in the prior art. Concerning item (b), the examiner asserts that because the prior art teaches substantially the same alloy product as presently claimed, then substantially the same characteristics, such as fluidity, would be expected to be present. Concerning item (c), the examiner asserts that given the disclosure of Zhou (who teaches a combined sintering and

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extruding of aluminum alloys), it would have been within the level of one of ordinary skill in the art to achieve a TS, YS, and elongation within the ASTM wrought specifications.

Because Zhou teaches an aluminum alloy product substantially the same as the presently claimed product, it is held that Zhou has created a prima facie case of obviousness of the presently claimed invention.

Concerning claims 40-45, 54, and 57, Zhou does not mention the presence of defects including" micropores, microshrinkage defects, or intergranular voids. On the contrary, Zhou teaches that porosity is eliminated. Therefore it is held that the aluminum alloy product taught by Zhou contains a negligible amount of said structural defects.

5. Claims 17, 18, 20-22, 26, 29, 32, and 40-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pickens et al (US 5,032,359).

Pickens teaches an aluminum alloy product (abstract), as presently claimed in instant claim 17, wherein said product is preferably an Al-Cu alloy (instant claims 21 and 29) with negligible porosity (instant claim 18, see Pickens column 9 lines 8-9, 26-27). Pickens teaches an Al-Cu-Li alloy composition (Table 1) that overlaps the alloy composition as presently claimed in claim 22. Pickens teaches that said Al alloy exhibits an elongation  $\geq 4\%$  (instant claim 31, see Pickens Fig. 18).

Pickens does not teach (a) a process of producing said aluminum alloy by centrifugally casting and then hot isostatically processing (instant independent claim 17), (b) said alloy has "sufficient fluidity as a melt for centrifugal casting" (instant claim 20), or (c) "a tensile strength, a yield strength and an elongation meeting ASTM wrought specifications" (instant claim 32). Concerning item (a), as stated above, it is well settled that a product-by-process claim defines a

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product, and applicant has not shown that the presently claimed product is materially different from that disclosed in the prior art. Concerning item (b), the examiner asserts that because the prior art teaches substantially the same alloy product as presently claimed, then substantially the same characteristics, such as fluidity, would be expected to be present. Concerning item (c), the examiner asserts that given the disclosure of Pickens (who teaches a casting and extruding of aluminum alloys, column 14 lines 49-50), it would have been within the level of one of ordinary skill in the art to achieve a TS, YS, and elongation within the ASTM wrought specifications.

Because Pickens teaches an aluminum alloy product substantially the same as the presently claimed product, it is held that Pickens has created a prima facie case of obviousness of the presently claimed invention.

Concerning claims 40-45, Pickens does not mention micropores, microshrinkage defects, or intergranular voids. On the contrary, Pickens teaches said alloy has negligible porosity. Therefore it is held that the aluminum alloy product taught by Pickens contains a negligible amount of said structural defects.

### ***Response to Amendment***

6. The declarations filed under 37 CFR 1.132 filed on October 31, 2003 and July 11, 2003, are sufficient to overcome the rejection of claims 33-39, 46-52, 53-59, 61-79 (as set forth in the Final rejection mailed February 7, 2003).

The examiner agrees that aluminum alloys in an annealed (type O) temper are expected to have strength properties significantly different that of the alloy in a T6 temper (declaration, item 24). The examiner points out that the strength values listed in claims 33-39, 46-52, 53-59, 61-79



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are not met by a 6000 or 7000 alloy in an annealed (type "O") temper (see "Aluminum and Aluminum Alloys" p 72, 73).

Applicant has clearly shown evidence that 7000 series aluminum alloys, substantially as set forth in claims 59, 61-66, and 73-79, exhibit unexpected isotropic properties (while maintaining strength) and unexpected fatigue properties, as compared to the prior art (see declaration filed July 11, 2003).

Applicant has clearly shown evidence that 6000 series aluminum alloys, substantially as set forth in claims 33-39, 46-59, 61-79, exhibit an unexpected combination of strength and isotropic properties, as compared to the prior art (see declaration filed October 31, 2003).

Additionally, applicant has shown that the presently claimed process steps (as set forth in independent claims 54 and 59, and as applied to 6000 and 7000 series aluminum alloys) do materially effect the presently claimed product-by-process. Concerning independent claim 17, which is also a product by process claim, said claim is not allowable because the unexpected results are not commensurate in scope with the presently claimed ranges. Applicant has not shown that when said process steps are applied to 2000, 4000, or 8000 series aluminum alloys, then a materially different product results.


### ***Conclusion***


7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janelle Combs-Morillo whose telephone number is (571) 272-1240. The examiner can normally be reached on 8:30 am- 6:00 pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

  
GEORGE WYSZOMIERSKI  
PRIMARY EXAMINER

  
jcm  
May 3, 2004